

I claim:

1. A frame saw for sawing a relatively thick piece of wooden feed stock simultaneously into a plurality of thinner pieces of wood, comprising:

(a) a feed assembly for continuously feeding the stock from an upstream input position to a downstream output position;

(b) a plurality of closely spaced-apart parallel reciprocable saw blades positioned intermediate the input position and the output position for sawing the stock into thinner pieces of stock as the stock is moved by the feed assembly relative to the blades;

(c) a drive assembly operatively connected to the blades for driving the blades in a reciprocating motion comprising alternate cutting and non-cutting strokes;

(d) a linear offset motion assembly for moving the reciprocating blades alternately upstream and downstream into linearly-offset cutting and non-cutting positions relative to the stock; and

(e) control means for coordinating the reciprocating movement of the blades and the linear offset motion of the blades to thereby permit continuous movement of the stock while the blades are in both the cutting and non-cutting positions and strokes.

2. A frame according to claim 1, wherein said control means comprises:

(a) an encoder for determining the reciprocation position of the blades; and

(b) a servo-motor responsive to position signals received from the encoder for moving the linear offset motion assembly linearly in timed relationship with the reciprocation of the blades.

3. A frame saw according to claim 2, wherein the saw blades reciprocate vertically between a cutting downstroke and a non-cutting upstroke.

4. A frame saw according to claim 3, wherein the linear offset motion assembly moves the saw blades linearly downstream away from the moving stock during the non-cutting stroke of the blades.

5. A frame saw according to claim 4, and comprising a saw frame carriage within which the saw blades are carried for reciprocation.

6. A frame saw according to claim 5, wherein:

(a) said linear offset motion assembly includes first and second carriage arm assemblies connected to the saw frame carriage for pivotal movement with the reciprocation of the saw blades about respective pivot points; and further wherein

(b) the servo-motor moves the saw frame carriage alternately upstream and downstream into linearly-offset cutting and non-cutting positions relative to the stock by linearly moving the pivot points of the respective carriage arms in coordination with the reciprocating movement of the frame saw carriage.

7. A frame saw according to claim 6, wherein said carriage arm pivots are defined by respective pivot blocks mounted for linear movement.

8. A frame saw according to claim 7, wherein said pivot blocks are connected together by a connecting rod for unison movement.

9. A frame saw for sawing a relatively thick piece of wooden feed stock simultaneously into a plurality of thinner pieces of wood, comprising:

(a) a feed assembly for continuously feeding the stock from an upstream input position to a downstream output position;

(b) a plurality of closely spaced-apart, parallel and vertically-reciprocable saw blades carried in a saw frame carriage positioned intermediate the input position and the output position for sawing the stock into thinner pieces of stock as the stock is moved by the feed assembly relative to the blades, the saw blades having teeth thereon angled to cut the stock on a cutting downstroke of the saw frame carriage;

(c) a drive motor operatively connected to the saw frame carriage for driving the blades carried in the saw frame carriage in a reciprocating motion comprising alternate downward cutting and upward non-cutting strokes;

(d) a linear offset motion assembly for moving the saw frame carriage alternately upstream and downstream into linearly-offset cutting and non-cutting positions relative to the stock; and

(e) control means for coordinating the reciprocating movement of the saw frame carriage and the linear offset motion of the saw frame carriage to thereby permit continuous movement of the stock while the blades are in both the cutting and non-cutting positions and strokes, said control means comprising:

(i) an encoder for determining the reciprocation position of the saw frame carriage; and

(ii) a servo device responsive to position signals received from the encoder for moving the linear offset motion assembly linearly in timed relationship with the reciprocation of the saw frame carriage.

10. A frame saw according to claim 9, wherein said servo device comprises:

(a) a servo-motor; and

(b) a rotary-to-linear motion apparatus for translating rotary motion of the servo-motor into a corresponding linear motion of the linear offset motion assembly.

11. A frame saw according to claim 10, wherein said rotary-to-linear motion apparatus comprises a ball screw assembly.

12. A method of sawing a relatively thick piece of wooden feed stock simultaneously into a plurality of thinner pieces of wood, comprising the steps of:

(a) continuously feeding the stock from an upstream input position to a downstream output position;

(b) simultaneously sawing the stock into a plurality of thinner pieces of stock as the stock is fed relative to the blades by driving the blades in a reciprocating motion comprising alternate cutting and non-cutting strokes;

(c) moving the reciprocating blades alternately upstream and downstream into linearly-offset cutting and non-cutting positions relative to the stock; and

(e) coordinating the reciprocating movement of the blades and the linear offset motion of the blades to thereby permit continuous movement of the stock while the blades are in both the cutting and non-cutting positions and strokes.

13. A method according to claim 12, and including the steps of:

(a) determining the reciprocation position of the blades; and

(b) moving the linear offset motion assembly linearly in timed relationship with the reciprocation of the blades.

14. A method according to claim 13, wherein the step of reciprocating the blades comprises the step of reciprocating the blades vertically between a cutting downstroke and a non-cutting upstroke.

15. A method according to claim 14, wherein the saw blades move linearly downstream away from the moving stock during the non-cutting stroke of the blades.

16. A method according to claim 12, wherein the depth of cut of a single cutting stroke of the blades is equal to the sum of the downstream travel of the feed stock during the cutting stroke and the linear upstream travel of the blades from the non-cutting to the cutting position.